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Educational Research Bulletin

National Education Association and Uniformity in Child-Accounting

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The need for uniformity in child-accounting was recognized at least two decades before the organization of the National Education Association in 1857. Horace Mann and Henry Barnard saw this need more clearly than most men of their day. Each tried to secure uniformity in the terminology, in the rules of procedure, and in the record and report forms used in their respective states, Massachusetts and Connecticut. Mann even insisted that nation-wide uniformity in terminology should be adopted.[1]

The present article will attempt to recount the occasions upon which consideration has been given this subject by the National Education Association since its organization. The frequency with which the topic has been discussed by the Association, the committees appointed from time to time to study the problem, the reports of these committees, and the attitude of the leaders of the Association toward this type of uniformity, will be considered. Two subordinate topics will be considered first, however, the early history of the organization and the attempt at uniformity by means of a national department of education.

(1) Heck, A. O. "The Attitude of Mann and Barnard Toward Uniformity in Child-Accounting," *Educational Research Bulletin* 4:4-9, 18-19, January 7, 1925.

Early History of the Association

In 1849, eight years before the National Education Association was formed, a call was sent out for "the friends of the common schools of the United States" to meet at Philadelphia. These friends met on October 17, 18, and 19, and organized under the title, American Association for the Advancement of Education. This Association might well be called the forerunner of our present national organization. Its ideals were similar, but it admitted to membership anyone who styled himself a "friend of education." The meetings were held regularly until 1857, when the one then scheduled to be held in New York was cancelled, because a national convention of teachers at Philadelphia had been announced.

At this meeting on August 26, 1857, the organization, at present known as the National Education Association, was organized under the name The National Teachers' Association. This title was retained until 1870 when it was changed to the National Educational Association. It was not until 1907 that the *al* was dropped from educational and the organization assumed its present name.

The meetings were to be held biennially, beginning in 1858, but the second convention was so popular that

annual meetings were demanded. The constitution was changed accordingly and except for the years 1861, 1862, 1867, 1878, and 1906, a convention has been held annually ever since.

Those who attended the huge assemblage of the National Education Association at Washington, D. C. in 1924, may have difficulty in properly visualizing the Association's beginnings. Only forty-three members were present at that first convention. At the second in Cincinnati, seventy-six members responded to the final roll call; of these only three belonged to the original forty-three. They were the president, the vice-president, and the secretary. The other seventy-three members were elected at this meeting.

Such a small membership had its advantages. The members could hold informal discussions on topics which would be difficult to treat in an interesting manner in the more formal lecture before a large gathering. School statistics, one phase of which is child-accounting, was such a topic, and at these early meetings it appeared very frequently upon the programs.

Attendance at the conventions soon increased. In 1866 the Department of Superintendence was organized at Harrisburg. After its organization and especially after its incorporation as a part of the National Education Association in 1870, this topic ceased to find a place on the program of the larger body and was discussed at great length in the meetings of the superintendents. The new department grew rapidly. When, therefore, the National Council was organized in 1880, the superintendents ceased giving so much attention to the topic and the Council assumed the task. In succeeding years, sometimes alone and sometimes in cooperation with the Department of Superintendence the National Council has had made and reported numerous studies relating to child-accounting.

UNIFORMITY BY MEANS OF A NATIONAL DEPARTMENT OF EDUCATION

Professor William Russell in his address before the first meeting of the National Teachers' Association in 1857 said:

> I trust the time will come when our government will have its Educational Department just as it now has one for Agriculture, for the Interior, for the Navy, etc. Surely these interests cannot be more important than those which pertain to the intellectual and moral welfare of our people.[1]

At the next convention this resolution was adopted:

> *Resolved*, That a Bureau of Statistics is most important in carrying forward the work which we have initiated; and that such a department would exert a powerful influence in promoting the cause of popular education throughout the country.[2]

In 1859 the convention memorialized Congress regarding "the establishment of a national agency through which education statistics of the several states and territories may be employed and distributed throughout the country."

In 1865 the Association asking that a National Department be organized, memorialized the President and both houses of Congress. A committee of three was appointed in each state "to circulate petitions among the people of their respective states praying Congress to establish a Department of Education." A. J. Rickoff, superintendent of schools at Cincinnati, addressed the convention urging the establishment of an educational department and the appointment by the President of the United States of a National Commissioner of Education. The National Association of School Superintendents which had just been organized, met in Washington in February, 1867. They had already been active in urging the enactment of the bill

(1) National Teachers' Association. *Journal of Proceedings and Lectures at the Fifth Annual Session.* Held at Chicago, August 5, 6, 7, 1863. p. 18.

(2) National Teachers' Association. *Journal of Proceedings and Lectures at the Second Annual Session.* Held at Cincinnati, August 11, 12, 13, 1858. p. 31.

which had appeared before Congress in June, 1866, authorizing the establishment of a National Department of Education. At the Washington meeting they again organized in support of the bill.

These cooperative efforts were successful, for this bill became a law on March 2, 1867. The Department of Education began to function that same year, and Henry Barnard was appointed Commissioner of Education. Throughout the entire campaign for the Department of Education one of the chief reasons given for its establishment was the necessity for a national system of school statistics. Foremost among these statistics were those that pertained to child-accounting. The uniformity implied here, however, dealt only with terminology and rules of procedure.

The establishment of the national department did not achieve all ends sought, for even at present, uniformity in child-accounting is a thing of the future. This was clearly shown in the first article of this series.[1] The failure of the Department—now the Bureau of Education—to secure these needed uniformities has been due to its lack of compulsory power. So fixed has become the conception of "education as a state function" that any federal control in these matters has been impossible.

There was a time when federal control seemed imminent, but the new Department of Education existed only two years, 1867 to 1869. It was then reduced to a Bureau in the Department of Interior and it has remained so ever since. This change did not please the advocates of federal control, and in 1871 Hoar, of Massachusetts, introduced a bill in Congress "to compel by national authority, the establishment of a thorough and efficient system of public instruction throughout the whole country." The bill "was vigorously pressed by leading members of Congress and at one time seemed likely to be successful."

This bill would have established at one stroke uniformity in child-accounting as it is defined in this series of articles. The federal control allowed by this bill was extensive: (1) All state superintendents were to be appointed by the president. (2) Division inspectors were to be appointed by the Secretary of the Interior, one for each congressional district. (3) State superintendents were to divide the inspectors' districts into school districts, each of which was to be under the control of a local superintendent appointed by the Secretary of the Interior. (4) The National Commissioner of Education was to prescribe the forms of the register of attendance, conduct, age, and other particulars respecting the pupils in school, and furnish blanks for the same.[2]

The Association has given its support again and again, in recent years, to efforts for securing a federal department, but none of the later efforts have sought such a high degree of federal control as did the one of 1871. Recent advocates of such a department have insisted that all administrative and supervisory control shall continue in the hands of those now exercising that control. They have recognized definitely that education is and should remain a state function.

How Frequently Has the Topic Been Considered?

In answering this question no attempt has been made to differentiate between the various phases of child-accounting. Sometimes the discussion or report centered upon terminology, sometimes upon rules of procedure in securing data, and sometimes upon the forms to be used in recording or reporting. The facts presented show what was found in the proceedings of the Association. It has been evident from an examination of them that they do not tell the entire

(1) Heck, A. O. "Uniformity in Child-Accounting," *Educational Research Bulletin*, 3:298-303, October 29, 1924.

(2) *N. E. A. Addresses and Proceedings, etc.*, 1871. p. 16ff.

story. Committee reports often have not been recorded and discussions from the floor have seldom been reported. In such cases, only from the minutes of the meeting has it been possible to know that the subject was even considered.

Including the year of organization (1857) there has been an opportunity for sixty-eight annual meetings of the National Education Association, of which sixty-three have convened. This includes the year 1893 when the International Congress was held under its auspices. At thirty-four of these meetings the topic of child-accounting has been given some consideration either in the general meeting, in the Department of Superintendence, or in the National Council.

For the years 1871, 1872, 1874, 1877, 1885, 1887, 1889, 1890, 1891, 1892, 1894, 1911, 1912, extensive reports are included in the proceedings of the Association on certain child-accounting topics. This was probably due to the care with which these proceedings were published, rather than because these reports were more important than the earlier discussions.

HAVE COMMITTEES BEEN APPOINTED TO STUDY THE PROBLEM?

So frequently have committees been appointed by this organization to study some phase of child-accounting, that it might well be called a habit. During sixteen of the sixty-three years, when meetings have been held, special committees have been appointed. On six of these occasions two committees were appointed to handle different topics in the field. Some of these committees have served several years in succession before completing a given investigation, in some instances preliminary reports were made, while at other times only the final report was submitted.

Moreover, during a period of eighteen years—covering nineteen meetings—the National Council of Education had as a part of its organization two standing committees concerned with topics in this field; one was called the Committee on Educational Statistics, while the other was known as the Committee on Educational Literature. These committees did not report each year. Their program was continuous, but their reports came at intervals of three or more years.

During the existence of the National Teachers' Association, 1857–70, eleven of fourteen possible meetings were held. Committees were appointed at eight of these sessions, and at five of them two committees were appointed to make investigations.

Based upon a comparison of the number of committees appointed, the subject evoked more interest among educators during the fifties and sixties than it does today. The practice of that early day, however, lagged far behind the theory regarding statistics. The Pennsylvania State Superintendent in the seventies pointed with pride to a kind of statewide uniformity which is widely duplicated today. Although a study of current practice indicates that there is very little uniformity in present procedures in child-accounting, when those procedures are considered from the historical point of view, a decided improvement can be noticed.

HAVE ANY OF THE COMMITTEES REPORTED?

The question, "Have any of the committees reported?" is more easily answered than "How many?" A survey of the Proceedings showed that at least fifteen of the committees made reports. This included reports of the standing Committees on Educational Literature and Educational Statistics of the National Council for the years 1880 to 1898. This does not mean that all of these reports are to be found in print. Some of them were made but

never printed. This is true especially during the life of the National Teachers' Association. The organization was small and evidently hard pressed for financial support. Many good reports were thus lost to educational literature.

Reports for the years 1871, 1872, 1874, 1877, 1885, 1887, 1889, 1890, 1891, 1892, 1894, 1911, and 1912, are among some of the better studies which have been made and preserved by the Association. The earlier of these reports dealt particularly with the need for uniform terminology and rules of procedure. These were also considered in some of the later reports. In the eighties more attention was given to uniform report forms. More recently the need of uniform record forms has received attention. This was especially true of the reports made in 1911 and 1912.

WHAT HAS BEEN THE ATTITUDE OF LEADERS OF THE ASSOCIATION TOWARD THIS KIND OF UNIFORMITY?

In most of the discussions of these educational leaders the demand for uniformity has been the dominant note. In 1871 Mr. Creery, superintendent of schools, of Baltimore, in discussing the topic, "Statistics of School Attendance" said:

> School statistics are valueless for purposes of comparison because there is no uniformity in the language used, and no common understanding of the methods by which the various results are derived. Upon some of our school reports . . . . you will find as many as ten or twelve designative terms, and each one having a special understanding in the mind of him who uses it, so that if anyone desires to compare two cities, if he should find the same terms in two different reports, he is not sure that they mean the same thing.[1]

In 1872 Mr. W. T. Harris reported for a committee on uniform school statistics. He recommended a uniform plan for securing the number of children belonging. The scheme was an adaptation of what has long been known as the "Chicago Rule." The new plan eliminated several of the subjective elements of the older rule. After having been used one year in St. Louis, Chicago, and Cincinnati, its value was so apparent that the committee not only recommended its use, but the Department of Superintendence adopted the committee's report and urged all city superintendents to use the same device.

J. P. Wickersham, state superintendent of Pennsylvania, addressing the city superintendents in 1874 and discussing items that ought to be reported, said:

> We want to ascertain these things uniformly and I hope the Commissioner of Education, may promulgate some form, that we may adopt in every state and city, and that we may have uniform statistics. I do not care how they are gathered, whether one way or another, but they should all be gathered in the same way so that we may tell one story in all the states, and that a truthful story.[2]

He also insisted that the Commissioner should suggest the ages for taking the census and that all states should incorporate those ages in their school census laws. A committee was appointed which presented sample forms at the following meeting. These were adopted. Another committee was then appointed to encourage their use by all superintendents.

In 1877 the question of uniformity again "bobbed up." Wickersham reported state-wide uniformity for Pennsylvania with regard to school statistics with one exception. Philadelphia had not adopted the state-wide plan. Others were not so optimistic. Superintendent Lucky of Pittsburgh regretted the present lack of uniformity and said that it was his opinion "that the present statistics of many cities are almost useless at home, and absolutely useless abroad as standards of comparison.

(1) *N. E. A. Addresses and Proceedings, etc., 1871.* p. 225–26.

(2) Wickersham, J. P. "Report of City Superintendents." *Circulars of Information of the United States Bureau of Education.* No. 1, 1874. p. 23.

The same terms have different meaning in different places."[1] Mr. Bicknell, state commissioner of education for Rhode Island, insisted that the want of uniformity of statistics was due to "(1) public indifference, (2) official indifference or carelessness, (3) want of authority on the part of officials to secure proper returns, (4) want of uniform understandings as to the meaning of terms."[2] He thought these ought to be remedied.

Andrew McMillan, city superintendent at Utica, New York, discussed the topic "Uniformity in School Statistics" at the 1881 meeting of the Department of Superintendence. After re-stating the commonly observed facts about non-uniformity, he said, "It seems to me there ought to be more uniformity in the manner of keeping records of school attendance."[3] In open discussion Stone of Springfield, Massachusetts, insisted that he did not see how the matter of securing comparable figures "could be reached unless by compelling the adoption of a uniform system."

The committee which reported on educational literature in 1885 said:

> In the matter of school nomenclature (terminology), greater uniformity is desirable, to render both the statistics and the organization and management of different systems intelligible to outside inquirers. Who can unravel the mystery of the word "district," as used in all the different states? And who but a "New Yorker" can understand the meaning of that word, even in the State of New York? Or who can tell what the phrase, "whole number of children," as used in different reports, means? Whether the whole number on the roll at a given date, the whole number of different children enrolled during the year, the whole number enrolled with duplicates, or the whole number of children enumerated. The "number belonging" and "membership" are no less indeterminate phrases.[4]

This committee among other things recommended uniform census ages as four to twenty-one and uniform compulsory school ages as six to fourteen for all states. Mr. Philbrick, superintendent of schools, of Boston, was chairman of the committee.

John Eaton in reporting for the committee on educational statistics before the National Council of the National Education Association, 1887, said:

> Whatever adaptation to local peculiarities with respect of what statistics include or exclude, the more they approach to a universal language the better. The aiming towards longer or more universal bearings of statistics in education need not, and should not take from their local meaning or lessons; but should add to them by affording larger range of comparisons. Each school, each district, ward, town, parish, borough, city, or county, each seminary, academy, college, university, should keep its statistics so as to accord with all others of similar character in its state; and each state should so keep its records as to compare in certain important particulars with those of every other state in our union; indeed, every nation may so keep its statistics that they may have some accord, some fair ground of comparison with every other nation.[5]

Greenwood, in 1889, and Thigpen, in 1890, when reporting before the National Council, each called attention to the lack of and the need for national uniformity in school statistics. Minor references continue to be made to this topic during the next two decades. In 1910 the Association took steps which ended in an outstanding contribution. A special committee was appointed on uniform records and reports. Its preliminary report was made by its secretary in 1911. The final report was made at the St. Louis meeting in 1912 by its chairman. The influence of this report will be considered in an article which will appear in the next issue. No outstanding report has been made by the association in this field since 1912.

The reader will be interested in knowing—if he does not know already—that the Department of Superintendence

(1) *N. E. A. Addresses and Proceedings, etc.*, 1877. p. 254.

(2) *N. E. A. Addresses and Proceedings, etc.*, 1877.p. 255.

(3) "Uniformity in School Statistics." *Circulars of Information of the United States Bureau of Education.* No. 1, 1874. p. 21.

(4) *N. E. A. Addresses and Proceedings, etc.* 1885, (Report of Committee on Educational Literature), p. 475.

(5) *N. E. A. Addresses and Proceedings, etc.* 1887. p. 314 ff.

has appointed a committee, since its 1924 meeting, to cooperate with a committee from the National Association of Public School Business Officials in a revision of the 1912 report. This committee is responsible for making a revision of child-accounting records and report forms. It remains to be seen whether school people are as yet ready to follow the suggestions which educational leaders have been making for the past six or seven decades and to adopt on a national basis a plan for securing child-accounting data uniformly.

SUMMARY

1. The National Education Association at the time of its organization in 1857 interested itself in establishing a Bureau of Education. In later years it has favored enlarging the scope of the national office.

2. The Hoar Bill of 1871, which was defeated after a most bitter fight, would have made education in the United States a federal instead of a state function. The degree of centralization proposed was extreme.

3. Of the sixty-three annual meetings held by the National Education Association, thirty-four of them have given some consideration to the subject of child-accounting.

4. Numerous committees have been appointed during these years to study problems in this field. At sixteen of the sixty-three sessions, one or more has been named. Often these were retained for several years. In addition the National Council had two such standing committees for the period 1880 to 1898.

5. Most of these committees made reports although but few of them were recorded in the Proceedings of the Association. This was specially true during the days of the National Teachers' Association.

6. The leaders of the National Education Association have continually urged the necessity of uniformity on a national scale for each of the three phases of child-accounting which has been discussed in each of these articles.

7. Although a study of the present status of child-accounting procedures shows little uniformity in present practice, yet when even these procedures are compared with those of half a century ago great changes are observed. Only when the problem is viewed historically, do the improvements which have been made become noticeable.

Lighting as a Phrase of School Hygiene

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Although scientifically correct lighting is an engineering problem, school men who have to do with the erection and equipment of new buildings and the maintenance and repair of old ones should be in possession of certain simple information on the subject.

Schoolrooms need to be well lighted because immature eyes are more susceptible to injury than are older ones. It is, therefore, essential that the illumination, by natural and artificial means, should conform to specific requirements.

MINIMUM AND OPTIMUM REQUIREMENTS

On June 16, 1924 the American Engineering Standards Committee approved a code for lighting school buildings which had been prepared under the joint sponsorship of the Il-

luminating Engineering Society and the American Institute of Architects. This code gives a table of *minimum required* and *recommended* foot-candles of illumination for school-working surfaces. Because of the comparative ease with which any one, after short experience with a foot-candle meter, can measure the light falling upon a given space, Table I is presented.

TABLE I. MINIMUM AND RECOMMENDED AMOUNTS OF ILLUMINATION*

	Minimum Required Foot-candles	Recommended Foot-candles
Walks, drives, and other outdoor areas, if used at night	0.1	0.5
Playgrounds, outdoor, if used at night	0.5	2.
Playgrounds, outdoor, if used at night for baseball, basketball, etc.	5.	10.
Storage spaces, passages, not used by pupils	0.25	2.
Boiler-rooms, power plants, and similar auxiliary spaces	1.	3.
Stairways, landings, corridors, aisles, exits, elevator cars, washrooms, toilets, locker spaces, dressing-rooms	1.	3.
Recreation rooms, gymnasiums, swimming-pools	3.	7.
Auditoriums, assembly-rooms	2.	3.
Auditoriums, assembly-rooms, etc., if used for class or study purposes	5.	10.
Classrooms, study-rooms (desk tops)	5.	10.
Classrooms, study-rooms (charts, blackboards)	3.	6.
Libraries (reading tables, catalogues)	5.	10.
Libraries (bookshelves, vertical plane)	3.	6.
Laboratories (tables, apparatus)	5.	10.
Manual-training rooms, workshops, etc.	5.	10.
Drafting-rooms, sewing	8.	15.

*Code of Lighting School Buildings. A Standard. Prepared under the joint sponsorship of and issued by the Illuminating Engineering Society, 29 West 39th Street, New York City, and the American Institute of Architects, 19 West 44th Street, New York City, 1924, p. 5.

For purposes of clarity it may be said in passing that one foot-candle represents the amount of light falling upon an area of one square foot, all points of which are one foot distant from a source having an intensity of one candle.

GENERAL STANDARDS

The problem of correct lighting is simplified by the observance of correct principles governing orientation; the location of the building in respect to obstructing trees, tall buildings, etc.; the ratio of window-glass area to floor area; the height, grouping, and location of windows; wall tints; the number of electric outlets to be provided; and so on, all of which are treated at length in *Standards for High-School Buildings* and *Standards for Elementary Buildings*, which have been prepared by Strayer and Engelhardt.

REPLACEMENT AND MAINTENANCE

What can be said about existing conditions and their correction where necessary? What attention is being given to the proper maintenance of correct-lighting facilities where such exist?

In 1922 the Cleveland Board of Education, realizing that many of their school buildings were inadequately lighted, authorized an investigation. A survey of one hundred and twenty-three school plants revealed inadequate lighting in seventy-four buildings. After selecting a typical building the Board invited dealers in lighting fixtures to submit sample units for testing purposes. Complete equipment of all units was then installed under properly controlled conditions and careful illumination tests were made. The effect of accumulated dirt was not the least of the various factors which were under observation, so that the units were left without cleaning for the same length of time. At the end of this period the illumination tests were again made which resulted in the selection of an enclosing unit. The semi-direct unit which had re-

ceived favorable initial consideration proved to be impractical for school purposes because of the rapid accumulation of dirt. Where lighting units of the dust-catching type are being used the janitor should be instructed to give them adequate periodic attention. Otherwise funds will be spent for current whose utility is vastly reduced.

Correct window-fittings also pay large dividends. An investigation of the lighting of two modern school-buildings recently revealed that the pupils and teachers were suffering from a want of light because a certain type of

TABLE II. COLORS AND THEIR LIGHT-REFLECTING VALUES*

Color	Percentage of Light Reflected
White, new	74 to 80
White, old	64 to 76
Ivory	66 to 70
Cream	66 to 72
Yellow	55 to 67
Buff	44 to 60
Gray	15 to 57
Light Green	43 to 67
Dark green	10 to 22
Light wood varnish	36 to 44
Natural wood, brown	13 to 26

* Clark, Janet Howell. *Lighting in Relation to Public Health.* Baltimore, Williams & Wilkins Company, 1924. p. 93.

patented blind could not be properly adjusted but was constantly jammed at the window head. Although the architect had planned properly, the school board had defeated his best efforts by making an unwise selection of window hangings. Rooms were discovered in these buildings with an illumination range of 3 f. c. to 20 f. c.—all were cases in which correct window-fittings would have diffused the light properly.

The colors of the walls and ceiling in a schoolroom should also receive their share of consideration. Rather than allow convenience to dictate, those responsible for schoolroom decoration should exercise careful judgment in their selection of colors. Only those colors which adequately reflect the light should be chosen. Eleven colors and their light-reflecting values are presented in Table II.

THE SITUATION IN ONE OHIO CITY

It is not uncommon to find school architecture of the seventies and eighties, and even of the sixties, forming a large percentage of the building equipment of some Ohio cities. Such buildings, as a rule, represent everything which should be avoided in correct school illumination.

Actual photometric readings were made recently in certain buildings of this type in one Ohio city. Here the windows are far apart and walls, as a rule, are tinted with dark, light-absorbing colors and are very dirty. There has been no attempt at proper orientation, so classrooms receive light from all directions. Some years ago the board attempted to relieve the situation by installing naked electric drops in each room. Old-type blinds are hung from the head of each window so that the light which is available cannot be diffused.

The light in these buildings was measured during cloudy weather. The blinds were high and the unshaded electric filaments were burning so that all illumination possible under the condition might be recorded. From five to eleven readings were made in each room.

A glance at the notes which were recorded with the various readings discloses such items as follows:

Three naked filaments burning; light so faint that it was almost impossible for instrument to register; no outside windows; twilight condition with all illumination possible; weather, cloudy; range, ½ to ½ f. c.

Slat blinds; windows rear and right; walls brown; weather, cloudy; range 1½ to 10 f. c.

(*Continued on page 43*)

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SUPERVISION VERSUS BUSINESS MANAGEMENT

The office of the city superintendent of schools began to be developed something less than a century ago as a direct result of the increased size of cities and the need for an administrative head of the school system. Until the opening of the present century, supervision of instruction was recognized as the most important duty of the superintendent of schools. The superintendent usually found his way to this position through long experience as a teacher and through success in dealing with the supervisory and administrative duties in a principalship. A large amount of local initiative was expected in individual schools and little effort was made to unify the policies of the various schools with a local system even in our larger cities.

The social development during the twentieth century, the rapid growth of cities, the expanding conception of education, the rapid increase in school population due to better attendance, and the consequent pressing financial problem, all have tended to change the activity of this office. As boards of education have faced increasing difficulties in securing adequate financial support for the schools, as the purchasing power of the dollar descended during the great war and following it, as multiplied activities of the government and the growth of popular demand for conveniences and luxuries increased, the boards of education have increasingly turned to the superintendent of schools for wise guidance in their financial problems.

Some school systems have attempted to solve the problem and at the same time to safeguard the time of the superintendent for supervisory duties through the employment of a business manager. In some places he has been coordinate with the superintendent, responsible directly to the board of education; while in others he has been given a subordinate position, reporting to the board through the superintendent. In the selection of the business manager, many cities have secured the services of an expert accountant, usually one with some practical experience in the business field. The procedure of a business management, responsible directly to the board, has seldom been satisfactory. It presents an interesting anomaly, namely, a person responsible for supplies, equipment, etc.—in fact, for everything which involves expenditure—while another is responsible for the results attained through the use of this expenditure but without any official word concerning what the expenditure shall be.

Too often the business manager has seen expenditures from the financial side only and has failed to understand the significance of expenditures from an educational standpoint. The difference between full value and little value from a teacher is frequently in terms of an expenditure for equipment or supplies which represents a very insignificant percentage of the money already being expended, yet the economy program of the business manager has prevented this small additional expenditure which would have greatly increased the educational output.

Business managers who are independent of the superintendent have

not been the only ones guilty of this sort of economy. Superintendents of schools who were responsible for the business management have frequently done the same thing. Boards of education have, by vetoing superintendents' requests for adequate supplies, perhaps produced this situation more frequently than both business managers, and superintendents of schools together. Superintendent McAndrew of the Chicago schools in his last report has shown clearly the multitude of administrative detail which tends to flow into the office of the superintendent of schools. He has shown also the impossibility of a superintendent attending to all of these duties and yet performing the function of school supervision. He has announced the definite policy of delegating administrative responsibilities and of increasing the amount of time which would be given to classroom visitation and constructive supervision.

The answer to the problem is not simple. Generally administrative business and financial affairs must be adequately looked after. And so, also, must classroom instruction, for efficient classroom instruction is the justification for financial expenditures and the duties of school administration. Some systems have attempted to solve the problem by appointing assistant superintendents to have charge of finance, construction, buildings, etc. In such case, the superintendent attempts to safeguard all phases of the work through the selection of efficient assistants. He attempts to delegate to these assistant superintendents responsibility for the successful performance of each of the various duties; while he retains for himself the responsibility for keeping the board and the community pleasantly conscious of progressive activities and constructively uncomfortable concerning deficiencies. Even so the stress of the present economic situation tends to cause major emphasis of time and thought to be expended upon the business side. The adequate coordination, however, of the instructional and the business aspects of the work in any system, however large or small, must be dependent upon a realization of the educational significance when budgets are being planned and money expended; and upon the financial resources and budgetary condition, when educational programs are being formulated and requests are being considered. Few superintendents can hope to be equally expert in both the supervisory and business phases. Every superintendent should, however, endeavor to keep highly sensitive to the needs in both fields.

Fundamental principles of business organization and business management, and fundamental principles or supervision of classroom instruction should be well known by every one who accepts a position as superintendent of schools. Adequate courses of training in both fields are presented every summer in our leading colleges of education. He who is lacking in his knowledge or ability to apply these fundamental principles in either field needs additional training. The old Arab maxim is applicable here: "He who knows not and knows he knows not, he is . . . . "—well if you don't like the word, all right, but the idea is that he needs education and realizes it and hence is in the best attitude for learning.

E. J. A.

A report of the class-size project which was conducted in Ohio cities last year will be given at the Research Association meeting at Cincinnati during the February meetings by Dr. P. R. Stevenson. A complete report will be published later as one of the regular numbers of the "Ohio State University Studies."

Selecting and Evaluating Arithmetic Problems[1]

B. R. BUCKINGHAM
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In a desultory way I have been engaged in collecting arithmetic problems since 1915. Pretty certainly in November and in April of each year my friends were likely to receive requests that they give their pupils certain problem tests. As time went on I secured about 500 evaluated problems—that is, evaluated in point of difficulty.

Some of the results of these activities were exceedingly interesting. Among other things it enabled me to reach a much better conclusion than had formerly been possible regarding the ability of children in the various grades to solve verbal problems in arithmetic. For example, light was secured on the question "Where does ability to solve verbal problems in arithmetic begin?" It appears that it begins almost at the outset of instruction in arithmetic. Indeed it is arguable that some ability to solve numerical problems may exist among children in the pre-school period.

Since, however, the ability in question was that of solving verbal problems, when these problems were written or printed, it was clear that not a little school experience was necessary before such ability could manifest itself. If we may define zero ability as just the failure on the part of any pupil to obtain the correct answer to a single problem in a printed test of ten problems consisting of the easiest possible exercises, then it appears that this zero is located considerably below the median ability of the low second grade. To be exact, it is 1.7 P. E. below the median ability of children in that grade.

It also became evident that certain problems could be used to represent concretely the ability which, on the average, children of each grade evince. A problem, for example, which just fifty percent of the children of a grade can solve is one which calls for at least the typical ability of that grade. For example, the following problem is in this sense a typical low second-grade problem: "There were 6 eggs in the ice chest. Mother used 2 in making cookies. How many eggs were left?" An equally typical problem for the low third grade is "Mr. Gray sold 10 bags of flour last Saturday at $2.00 a bag. How many dollars did he get for the flour?" while the following is a high third-grade problem to a hair, "Anna, Lizzie, Sarah, and Harry shared 20 apples equally. How many apples did each get?"

In this connection it was interesting to find out the difficulty of problems which typical children in the upper eighth grade can solve. Two such problems may be mentioned. It is to be understood that fifty percent of the high eighth-grade children solved these problems and that the remaining fifty percent were unable to solve them. Problem I is "Cream is sold in half-pint bottles. If a milkman buys it at $1.20 a gallon and it costs $ .40 a gallon to bottle and deliver it, at what price per bottle must it be sold to gain 20 percent?" The second of these typical high eighth-grade problems is "A farmer has a herd of 12 dairy cows that average 22 pounds each of milk per day. The milk contains 3.8 percent butter fat and butter fat is worth 28 cents per pound. What is the daily income from the herd?"

After these 500 problems had been obtained, a scale seemed the most obviously useful way in which I could

(1) Partial report of Project 12 of the Bureau of Educational Research.

assemble them. This did not prove an arduous task after I had obtained—by methods which have frequently been explained—a general expression for the difficulty of each problem. At this point, however, the perversity of the material manifested itself. It would have been such a happy solution if in each compartment of the scale ranging from very easy to very difficult it had been possible to place the same or nearly the same number of problems. In spite of efforts to diversify the difficulty, the exercises tended to bunch in the middle of the range. In other words, there were few very easy and few very hard problems.

Accordingly, a determined attack was made to secure a scale of uniform richness, when, in the fall of 1923, the evaluation of problems was seriously taken up as a Bureau project. In October a letter was sent to eighteen principals and superintendents who had indicated their willingness to cooperate with us in the selection of problems. In these schools and school systems the teachers were asked to formulate problems under certain instructions which included the direction that the problems devised should have, as nearly as their judgment permitted, the same difficulty as two type problems set at the top of the sheets furnished them. For example, some second- and third-grade teachers were asked to formulate problems of the same difficulty as the two following problems which in our earlier investigation had been found to have substantially equal difficulty: "If Mary gives her pet rabbit 3 carrots each day how many will she give him in 7 days?" and "How much will 6 footballs cost at $2.00 each?" Other second- and third-grade teachers were asked to formulate problems of other difficulties—some easier and some harder. Similarly, teachers of the fourth and fifth grades were asked to formulate problems of differing degrees of difficulty. Finally, for it will be remembered that it was the very easy and very hard problems we were after—teachers of the seventh and eighth grades were likewise asked to make problems similar in difficulty to some hard problems which were submitted to them.

Each teacher was asked to make five problems equal in difficulty to the two sample problems submitted. She was then asked to give these five problems, together with the two sample problems, to the pupils of her class. After she had rated the problems she was asked to report the number of pupils who solved correctly both the sample problems and the problems she had devised.

For example, one third-grade teacher who sought to make up five problems equal in difficulty to those mentioned above reported that of her 42 pupils 39 got the first problem right—the one about Mary and her rabbit—while 38 got the football problem right. Furthermore, she showed that on the five problems which she had devised the number of children answering correctly were 39, 28, 40, 36, and 34, respectively. This was a very close agreement between the teacher's original problems and the ones which had been supplied her as samples. Not many teachers were as successful in estimating the difficulty of the problems they had devised.

In making up these problems the teachers were guided by suggestions other than those relating to the difficulty of the problems. For example, they were requested to use simple words and small numbers, to make the problems interesting, and to diversify the required operations. Thus, although the two type problems furnished to the third-grade teacher mentioned above involved the operation of multiplication, the problems which she devised exhibited addition, subtraction, fractional division, and the equivalence of denominate numbers.

After problems had thus been secured from teachers selections from them were

made and thirty-nine different tests were formulated. Twenty-seven of these tests consisted of eight problems and twelve consisted of six problems. The six-problem tests were the most difficult of all and were used in the highest grades.

After these tests had been formulated involving as they did 288 problems, the tests were submitted to fifty-nine co-operating schools. Here responses were secured from 56,193 pupils. In some cases the teachers rated the papers. In many instances they did not. We were grateful for their cooperation whether they did this work or not. The pupils' papers which had not been rated were rated in the office of the Bureau. The ratings of the teachers were checked and passed if they measured up to an assigned standard of accuracy.

The data were now collected on cards, each card representing the results for a single problem. For example, one of the cards looks like the distribution presented in Table I which is that of Problem I for grades II-low, II-high, III-low, and III-high.

The project has now advanced to an interesting point. We are comparing the teachers' estimates with the pupils' responses. In other words we are comparing the difficulty of the problems according to the teachers' judgments with the difficulty of these problems according to the pupils' success in solving them. The comparison is not quite as I have stated it. It will be recalled that each teacher not only devised new problems, but that she gave them to her class together with the sample problems to which she was attempting to adjust the difficulty of her own problems. Accordingly we have on the one hand the teachers' judgment of difficulty plus the response of her own pupils, while on the other we have the response of something like 1,000 pupils in different parts of the country on the sample problems.

On the problem given in Table I—the problem about Jack and his fifteen cents—we have the following facts: This problem was devised by a low third-grade teacher and it was solved correctly by forty-two of her forty-eight pupils. This was a rather close agreement with the type problems against which she was measuring her original problems. On these type problems thirty-four and forty-one of her pupils turned in correct solutions. This amounted to 70.8 percent for the first sample problem and 85.4 for the second one, or an average for the two of 78.1. In a sense this may be said to be the

TABLE I. DISTRIBUTION BY GRADE FOR PROBLEM 1.

(Jack had 15 cents. He spent 5 cents. How many cents did he have left?)

SCHOOL NUMBER	LOW SECOND GRADE			HIGH SECOND GRADE			LOW THIRD GRADE			HIGH THIRD GRADE		
	Participants	Correct	Percent	Participants	Correct	Percent	Participants	Correct	Percent	Participants	Correct	Percent
1	60	44	73.3	51	48	94.1	88	78	88.6	67	66	98.5
7	19	4	21.1	58	39	67.2	42	34	81.0	41	41	100.
42	.....	.....	.....	11	10	90.9	35	30	85.7	.....	.....	.....
94	33	31	93.9	55	50	90.9	48	46	95.8	59	57	96.6
121	.....	.....	.....	10	10	100.	15	14	93.3	13	11	84.6
125	13	4	30.8	12	8	66.7	20	14	70.0	11	11	100.
127	42	38	90.5	18	17	94.5	21	20	95.2	36	31	86.1
158	45	22	48.9	50	27	54.0	52	42	80.8	68	61	89.7
Total	212	143	67.5	265	209	78.9	321	278	86.6	295	278	94.2

figure for difficulty at which the teacher is aiming in the selection of her problems. Her success in doing this is evinced in a preliminary way by the response of her own pupils and in a much more satisfactory way by the general response of pupils in various parts of the country.

The two sample problems on which this teacher's pupils averaged 78.1 percent had been by prior testing found to average 86.9 by children of the low third grade. Accordingly, we have the interesting evidence that the children of this teacher were not quite as capable in solving problems as we had previously found that children in general were in the low third grade.

On the problem in question—not the sample problem, but the original problem which the teacher had devised about Jack and his fifteen cents—forty-two of the pupils of the teacher's class made correct responses. This amounted to 87.5 percent of the class. We might fairly suppose that the ability of the class would be much the same for the teacher's original problems as it was for the sample problems—in other words that if the pupils were somewhat below the standard on one set of problems they would likewise be below par on the other set. We can check up on this by finding out how the pupils' responses in this teacher's class compare with the responses afterwards secured from other low third-grade pupils.

The form shown above indicates that on the problem about Jack and his money 86.6 percent of the low third-grade children obtained the correct answer, but these particular children scored 87.5 on this problem. In other words instead of being below par they were somewhat above it when they were working on a problem which their own teacher had selected.

This raises some interesting questions which we are in the midst of examining. Do children who are above or below average on the problems which *we* furnish exhibit the same tendencies on problems which their own teachers furnish? This has some interesting implications in respect to the grooves in which teachers may be working. Children may do well on the problems which their teachers present, precisely because these problems or problems closely similar to them have been presented many times before.

This is merely a progress report—a report to indicate the work we are doing on school material. One of the convictions we have is that every Research Bureau should be devoting some of its time and energy to the evaluation of school tasks. They may be problems, words, or questions to answer, or in a larger and better sense they may have to do with thought processes, with appreciations, and with attitudes. At any rate, whatever the tasks or the objectives may be, we are firm in our belief that we should know a great deal more about the ease with which these objectives may be attained and a great deal more as to the measure of our success in attaining them.

Conference Notes

SPECIAL EDUCATION SECTION

The Section for Special Education which last year attracted an audience of over three hundred Ohio teachers, and which met an evident need for the school people of Ohio, will be continued in the forthcoming Fifth Educational Conference. Following the policy announced last year the program of the Section will be devoted to various aspects of special education as well as to the special class for the feeble-minded. The program of the Section this year will again be correlated with the Sec-

tion for Clinical Psychology, so as to meet both the needs of classification and of differential education as related to all types of exceptional children.

The Section for Clinical Psychology, Professor Henry H. Goddard, chairman, will this year devote its entire program to a consideration of emotional development in children with special reference to its educational implications. Special emphasis will be given to the physical and physiological conditions which determine normal and abnormal emotional development. This program should be of special value not only to those interested in conserving the mental health of the school child, but also to those who desire to capitalize on the powerful incentives in learning and to avoid the various maladjustments in school children which follow from misunderstanding of their emotional reactions. The first number on this program will be an address by Professor Edgar A. Doll, Department of Psychology, Ohio State University, on "Emotional Disorders in Children," with special reference to a description of child behavior from the standpoint of emotional disturbances. A second address by Dr. Roy G. Hoskins, professor of physiology, Ohio State University, will be devoted to the physiological factors involved in normal and abnormal growth and development with special reference to emotional development. A third address, by Dr. Henry A. Cotton, medical director of the Trenton, New Jersey, State Hospital, entitled "The Emotional Instability of Children with Reference to the Underlying Toxic Factors," will be devoted to a consideration of the pathological factors involved in emotional instability with special reference to preventive and remedial treatment.

The first number on the program of the Section for Special Education will be Professor Henry H. Goddard on "The Wider Meaning of Special Education." Dr. Goddard will devote his address to a consideration of special education with respect to all types of exceptional children, not only the feeble-minded but also the gifted child, the unstable or psychopathic child, the delinquent child, and others. Dr. Meta L. Anderson, director of special classes, Newark, New Jersey, will present a paper entitled "Correlating the Special Class with the Community" in which she will deal with the problem of the educational policy and content in special classes for the feeble-minded with reference to the ultimate social adjustment of high-grade defectives in the community. The third address on this program is by Mr. Wesley A. O'Leary, commissioner of vocational education for New Jersey. Mr. O'Leary is well known throughout the country for his outstanding work in the field of vocational education in its many aspects. Mr. O'Leary has been giving special attention to the problem of education for those subnormal children who are not feeble-minded; children who are failures in the ordinary scholastic curriculum but who succeed under manual education. This is an acute problem in Ohio in view of the large number of children who under the compulsory education law are unable to complete the seventh grade at sixteen years of age. Mr. O'Leary will also deal with the relation of manual arts to other types of exceptional children.

The committee is particularly fortunate in being able to secure for these programs Dr. Cotton and Dr. Goddard, both of whom were prevented from appearing last year because of serious illness. In view of the marked disappointment of the audiences last year a special effort has been made to obtain these speakers whose work has contributed so significantly to the understanding of both normal and subnormal children.

These programs have been prepared with special reference to the conference

topic "Democracy in Education." The addresses are particularly important because of the significance of special education in relation to the educational ideal of securing equal opportunity for each child according to his individual needs, which is the essence of democratic pedagogy.

It is expected that those who attend the Conference and especially those interested in these sections will be welcomed as visitors at any of the state institutions in Columbus, and at the Bureau of Juvenile Research. No effort is being made this year to arrange a clinic at the Bureau of Juvenile Research as was so successfully done last year, but such arrangements will be made by the chairman of the Special Education Section, Edgar A. Doll, if sufficient interest is made evident before the conference convenes.

On the Firing Line

Superintendent J. C. Marriott has recently published a little bulletin which describes the county contests in spelling, penmanship, debating, and athletics for Knox County during the year 1925.

Dr. C. C. McCracken of the Department of School Administration, Ohio State University, has been cooperating with the secretary of the Board of Education of the United Presbyterian Church in a survey of higher institutions of learning of that denomination. A survey of the curriculum and administration of Monmouth College, Monmouth, Illinois, was made in 1922; of Sterling College, Kansas; of Tarkio College, Missouri; and of Muskingum College, Ohio, in 1924. He has also been requested to make a similar survey of Westminster College, Pennsylvania, and prepare a unit report on higher education for the General Board.

The Department of Attendance and Research of the city schools of Warren, Ohio, has made an analysis of the costs of the schools of that city for the year 1923–24. In comparison with seventy-three cities of a population of thirty to one-hundred thousand, Warren spent slightly more for capital outlay, slightly less for debt service, and slightly less for current expenditures. Seventy-five and six-tenths percent of the current expenditures were for instruction; 12.4, for operation; 4.2, for fixed charges; 3.6, for general control; 2.3, for maintenances; and 1.9, for auxiliary agencies. Expenses are also analyzed by subjects and grades.

P. R. Stevenson and E. J. Ashbaugh of the Bureau of Educational Research by the request of the boards of education at New Lexington and at Bremen have made recommendations for high-school sites in the two villages.

As a result of the state-wide testing in geography last year, Superintendent O. E. Pore of Portage County and his teachers are continuing the study this year. In order to tell the results, they have made up a specific examination which was given to all the geography pupils in the county. This examination was printed in the form of a standardized test and all the questions can be answered with a single word or a brief phrase. A scoring key allows the teacher to correct the papers in a short time.

Superintendent A. G. Yawberg and Assistant Superintendent Joseph A. Baer, have made an interesting study of the Cuyahoga schools. They have published a bulletin entitled "Save $2,000,000 or Better on Schools in Cuyahoga County." The study proposes

changes in the distribution of school funds and in the administration of these funds. A very complete building program for the entire county has been outlined including distribution of pupils and schools. The bulletin is published by the Cuyahoga County Public Schools, Old Court House, Cleveland, Ohio.

Something new has just come to our attention in the shape of a one-room rural school paper. Kyles and Flenner's Corner, both of which are in Butler County, publish a four-page monthly paper dealing with the news of the different schools and the communities. These papers are mimeographed in County Superintendent Fichter's office and are distributed through the pupils in each school. There is no reason why the one-room schools of Ohio should not take advantage of such means to keep their public informed concerning school activities.

A somewhat different idea in testing has been used in connection with a series of geography tests including the different continents. Standards on the South America test have been formulated for grades which have finished the study of the continent at the end of a given semester. Since different schools touch a given continent in different grades, it was found necessary to standardize the South America test for grades VI, VII, and VIII, while the norms given refer directly to June, the scores should be similar for each grade if the work was completed at mid-year.

The following norms were determined upon the basis of approximately 800 pupils per grade;

STEVENSON-RIDGLEY-SHIPMAN GEOGRAPHY TESTS
SOUTH AMERICA INFORMATION-PROBLEMS
JUNE NORMS*

GRADE	FORM I		FORM II	
	Part		Part	
	1	2	1	2
VI-A.....	22	10	22	10
VII-A.....	29	16	28	16
VIII-A.....	35	20	33	19

*Published by the Public School Publishing Company.

Educational Readings

JOHNSON, W. H., *The Socialized Recitation in the High School*, SR, 32:682-87, November, 1924.

The author here deals with the type and control of a socialized recitation project set up in the Lane Technical High School, Chicago, and the results secured. There were three phases in the recitation itself: the project, the discussion, and an after-period of review and criticism. The author discloses data which reveal a clear-cut case for this type of socialized recitation.

KAUFMANN, MYRTLE. *A First-Grade Promotion Plan*, JER, 10:369-74, December, 1924.

Miss Kaufmann has worked out a unique but practical scheme of using testing devices in the first grade. Primary teachers have been asking for standardized tests for a number of years. The Logansport schools have devised their own on the basis of their course of study, and find them advantageous in unifying the system, lifting the promotion question above the level of personal opinion, and increasing the effectiveness of teaching.

OSBURN, WORTH J. *Practice in the Fundamentals of Arithmetic*, JER, 10:356-63, December, 1924.

The testing of children in the fundamentals of arithmetic has usually shown large numbers to be inefficient in this type of work. An analysis of two of the leading practice tests has shown that the exercises which were intended to remedy these deficiencies have not been properly distributed. The writer reports an analysis of a widely used arithmetic test and finds conditions "topsy-turvy." Easy operations usually receive twice as much practice as difficult ones; some combinations do not occur at all; and there is no agreement among a number of our widely used texts as to the amount and character of practice afforded in one phase of the work. This study is

NOTE.—The abbreviations used in this number are: SR, School Review; JER, Journal of Educational Research; EA&S, Educational Administration and Supervision.

a challenge to makers of textbooks and practice material, and offers a word of caution, at least, to the teachers.

FREEMAN, FRANK N. *A Scientific Study of Visual Education*, *JER*, 10:375–85, December, 1924.

Visual education in many places has stood alternately between the conservatist who has condemned it as poor entertainment and the enthusiast who has freely predicted the early advent of the time when all teaching will be by use of the film. The results of this scientific study by one who is noted both for his interest in the subject and his thoroughly scientific attitude, will be helpful to all those who honestly wish to know the truth in regard to this problem. This article presents the results in a brief but clear-cut manner which will be intelligible to all.

WASHBURNE, CARLETON W. *Organizing Public Schools for Research*, *JER*, 10:364–68, December, 1924.

Superintendent Washburne and the school system of Winnetka, Illinois, have become famous in this country for the system of individual instruction used there. The research carried on by this superintendent and the teachers is also rapidly becoming known. This article lists certain problems which are under way and the method of organization used by which classroom teachers may carry on research activities.

WRIGHT, FRANK L. *The Distribution of Teachers' Marks in Teacher-Training Institutions*, *EA&S*, 10:605-16, December, 1924.

The writer says, "The purpose of this study is to discuss frankly the unscientific methods of administering teachers' marks in two institutions for the training of teachers and to show the need of some form of standardization." Again, "All prospective teachers will be required to give marks to their pupils; therefore they should have training in how to determine and how to distribute pupils' marks fairly. If one expects this knowledge to be given in the ordinary institution for the training of teachers, either by precept or by example, he is likely to be disappointed." The second quotation will indicate that the writer is living up to the purpose of his study (frankness), and the tables giving distribution of marks will substantiate the idea "unscientific." The writer concludes, "It may be said that the real cause of such distribution or lack of proper distribution of marks is the lack of proper professional spirit and training, as well as a general lack of consideration of the interests of students on the part of members of the faculty. They do not make reasonable effort to apply the knowledge they have on this important subject. They fail to critically analyze reasons for the various marks given; and furthermore, it is difficult to train them." It is to be hoped that the article will be widely read not only by administrators and supervisors in teacher-training institutions but also by administrators and supervisors in the public-school field. While the article is highly stimulating, it is not as constructive in showing how to train teachers in marking as one might well wish.

IN PAPER COVERS

CHICAGO, ILLINOIS. *Annual Report of the Superintendent of Schools*. Chicago, Illinois, Department of Education, 1924. 64 pp.

This superintendent's report is unique not only because of the type of illustrations used but also because of the nature of material reported and the form in which it is presented.

KINNEMAN, JOHN A. *A Study of Guidance among Normal-School Students*. West Chester, Pennsylvania, Author, State Normal School, 1924. 24 pp.

Based upon a survey including 1,154 normal-school students certain interesting findings are reported: (1) The educational background period of normal-school students is limited, although the parents, in the matter of guidance to their children, have played a much larger part than the high-school teachers. (2) The choice of teaching as a profession was reached while the students were in high school. Contrary to common opinion these students did not go to normal school because there was no other opening for them. (3) Normal-school students constitute a distinct group which has distinct ambitions and possesses a distinct skill but has not been kept out of college. (4) The students selected their teaching group primarily because of their fondness for children of the age of those in the group which they selected; secondarily because of a probable demand for teachers in their group and because of a wide freedom of action which might be offered.

MONROE, W. S. AND OTHERS. *Training in the Technique of Study*. Urbana, University of Illinois, 1924. 66 pp. (University of Illinois Bulletin, Vol. XXII, No. 11, Bureau of Educational Research, College of Education Bulletin No. 20).

The purposes of the investigation reported in this Bulletin were: (1) to secure evidence of the influence of the technique of study upon success in certain high-school subjects; (2) to devise means of giving training in the technique of study, and (3) to observe the effects of certain methods of training. This report is based upon a study of the work of eight high-school pupils during a period of ten weeks. Considerable information regarding each pupil was gathered including the scores on ten standardized tests, records on certain informal tests, and answers to certain questions by personal interviews. Certain

remedial devices were organized in light of the findings of this preliminary investigation and the authors report that noticeable progress was made by certain of the students during this period.

Centennial Conference on Teacher Training, Proceedings. Held at Terre Haute, Indiana, Thursday and Friday, December 6 and 7, 1923. Terre Haute, Indiana, Indiana State Normal School, 1923. 147 pp. (Indiana State Normal School Bulletin, Vol. XVII, No. I).

Within this bulletin are contained the addresses presented by members of the faculties of various state normal schools and teachers colleges before the centennial celebration of the founding of the first normal school in the United States in Concord Corner, Vermont, in 1823. This celebration was arranged exclusively for institutions whose sole business it is to train teachers.

ROCHESTER, NEW YORK. *The Cost of Public-School Education.* Rochester, New York, Board of Education, 1923. 197 pp.

This report describes the present public-school program of Rochester and the cost of financing it for the fiscal year 1923. The activities which are required by the state and those which are optional with local authorities are distinguished. The comparative cost for 1912 and 1923 and the causes for the increase in 1923 are given. The seven units of a school organization are discussed in turn. These include: the elementary school, the special-education unit, the continuation school, the junior high school, the senior high school, the city normal school, and the adult education. Current operating expenses, debt service, and school buildings are also discussed. For each of the units mentioned above, the purpose or the work which it is attempting to do is stated; the average cost for maintaining each unit, the average cost for each pupil within the unit for 1923, and the aggregate cost for that year are listed. In this report an attempt is made to give a cost distribution which may be readily understood by the lay-reader.

WOOD, THOMAS D., editor. *Health Education.* New York, 525 West 120th Street, 1924. 161 pp.

After discussing the health conditions in the United States and what the schools can do, the author defines the meaning of health, delineates the essential subject-matter for the teacher, presents certain educational problems in this subject, and suggests courses of study in health education.

HARTWELL, E. C. *Character Building.* Buffalo Board of Education, 1924. 43 pp.

A variety of factors which influence character education are discussed in this pamphlet. The responsibility of the teacher and of the principal in the moral training of the children is discussed. The place in character training of music, physical education, play and athletics, group activities, and such organizations as Boy Scouts and Camp-Fire Girls is evaluated.

AYER, FRED C. *Studies in Administrative Research.* Seattle, Washington, Public Schools, 1924. 117 pp. (Department of Research Bulletin, No. 1).

Persons who have been receiving the mimeographed reports of Mr. Ayer's work in Seattle or who have been hearing of them, will be glad to know that the four reports have been assembled in one pamphlet. These four reports deal with the time distribution of subjects and grades, curriculum making and the adaptation of the curriculum, upper-grade organization, and progress of pupils.

Educational Radio. New York, Board of Education, 1924. 254 pp.

This report of the educational activities carried on over the radio tells of 40 addresses by executives and department heads; 53 typical class recitations dealing with various subjects; and programs by 13 school glee clubs and by 19 school orchestras, which were "broadcasted" during fifty-two consecutive school days.

The Junior High School, A Course of Lectures on. Chicago, Board of Education, 1924. 160 pp.

This series of lectures on the junior high school were given before the school principals of Chicago by college experts. The contents include: "The Development of the Junior High-School Movement," C. H. Judd; "The New English Program," R. L. Lyman; "Mathematics in Junior High School," E. R. Breslich; "Vocational Education and the Practical Arts," E. T. Filbey; "The Social Studies," R. M. Trimon; "Science in the Junior High School," J. Pieper; "Educational Guidance and Counseling," W. C. Reavis; "Testing in Classification of Pupils," J. F. Gonnelly; and "The Relation of the Junior High School to Other Divisions of the System," H. G. Morrison.

BOOKS TO READ

MINOR, RUBY. *Principles of Teaching Practically Applied.* Boston, Houghton-Mifflin Company, 1924. 281 pp.

Although the author lays no claim to originality for the principles defined in this book, still the book is filled with helpful suggestions for any teacher who will study it. The book contains much sane information, is characterized by definite purposes, and is replete with practical advice.

THOMAS-TINDAL, EMMA V. AND MYERS, JESSIE DUVALL. *Junior High-School Life.* New York, Macmillan Company, 1924. 287 pp.

Guidance is the essential idea of this book—physical, curricular, statistical, social, vocational, civic, avocational, and ethical—because it is the essential characteristic of this type of school. Guidance is to be shared by the teachers individually and collectively. A list of intercurricular activities one hundred pages in length is given.

LIGHTING AS A PHASE OF SCHOOL HYGIENE

(*Continued from page 31*)

It is admitted that the former of these cases is extreme, though actual. The latter, however, is typical of some sixty rooms which were visited.

Since the readings cited were made on cloudy days, their validity as a basis for illumination recommendations may be challenged. A study of the amount of clear, cloudy, and partly cloudy weather for the five-year period, 1919-23 by Mr. Garry Eckard, a graduate student at Ohio State University, was compiled from the records of the United States Weather Bureau. The computations reckoned for the month of February, March, and April are given in Table III. The figures for February and March will approximate those for November, December, and January. Added significance is lent to these figures when the school day is approximated at six hours. On this bases February is found to have the equivalent of 15 school days without sun; March, 11⅔; and April, 10⅙ days. The criticism, which questioned the validity of the readings of school illumination made upon cloudy days can in view of these findings hardly defend itself.

SANITATION

The problem of adequate lighting in connection with sanitation is not the least to be considered in this day of established knowledge of bacteria and their ways. Aside from the sterilizing effect of direct sunlight which should be utilized during the hours when school is not in session, cognizance should be taken by school authorities of the fact that janitors, in the absence of proper illumination, cannot observe correct standards of cleanliness in basements, toilets, and corridors. Thus, the health of pupils is assailed from another direction if improper lighting conditions exist.

It, therefore, appears that even an elementary knowledge of proper lighting standards possessed by those concerned with school administration and control, including the teacher and the janitor, will tend to eliminate the glaring deficiencies which now exist so generally.

TABLE III. CLOUDY, PARTLY CLOUDY, AND CLEAR SCHOOL HOURS DURING THE MONTHS OF FEBRUARY, MARCH, AND APRIL FOR FIVE YEARS, 1919–23*

	CLEAR	CLOUDY		PARTLY CLOUDY
		With Sun	Without Sun	
FEBRUARY				
Five-Year Range...	27 to 41	12 to 38	78 to 109	14 to 43
Total Hours.....	161	147	450	142
Average Number Hours.....	32	29	90	28
Average Percent...	18	16	50	16
MARCH				
Five-Year Range...	50 to 71	22 to 36	53 to 97	28 to 39
Total Hours.....	305	147	348	208
Average Number Hours.....	61	29	70	42
Average Percent...	30	14	35	21
APRIL				
Five-Year Range...	22 to 98	17 to 73	35 to 115	29 to 56
Total Hours.....	259	181	307	207
Average Number Hours.....	52	36	61	41
Average Percent...	27	19	32	22

*From data submitted by Garry Eckard, graduate student, Ohio State University.

NEW TESTS

There is likely no city in the country in which scientific testing is being so consistently used as in Detroit. The Detroit Kindergarten Test and the Detroit First-Grade Intelligence Test are well known. Two new tests have just appeared, prepared by Harry J. Baker of the Psychological Clinic, which carry the intelligence tests through grade IX. The first of these, The Detroit Primary Intelligence Test, prepared for grades II to IV inclusive, consists of seven parts, three of which are pictorial: Matching Designs; Missing Parts; Mixed Directions, Information and Memory; Largest Number; Information-Reading; Number Series in Concrete Forms; and Matching Six Mixed Letters. Two equivalent forms of this test have been prepared. The letter rankings according to the Detroit system A, B, C+, C, C−, D and E are available, based upon the scores of 17,000 Detroit pupils.

The second test, the Detroit Alpha Intelligence Test, has been prepared for pupils from grades V to IX inclusive. It consists of eight parts: Information, Opposites, Classification, Block Designs, Logical Selection, Analogies, Number Series, and Mixed Directions. The test requires about forty-five minutes for administering. The letter ratings similar to those just mentioned are available based upon the scores of 3,000 pupils.

The Cross English Test prepared by Professor E. A. Cross of the State Teachers College, Greeley, Colorado, appears in three equivalent forms, A, B, and C. This test is not a literature test, nor is it concerned with such problems of composition as paragraph writing or the finer points of rhetoric, rather the author says, "Its field is the sentence, the fundamental unit of composition." The test consists of eight parts: Spelling, Pronunciation, Recognizing a Sentence, Punctuation, Verb Forms, Pronoun Forms, Idiomatic Expressions, and Miscellaneous Faulty Expressions. The test is very easily scored since the answers are recorded simply by the use of check marks opposite the form considered correct by the person taking the test. The key to the test is arranged in corresponding form so that it may be creased and laid down opposite the column being checked. In this way the scoring becomes simply a matter of routine.

A score card for one- and two-room school buildings has just been prepared by the Department of Public Instruction of the State of Wisconsin. The Wisconsin Score Card is divided into six sections. The total score of 1,000 points is apportioned as follows: Site, 125; Building Construction, 160; Internal Struction, 255; Service Systems, 250; Accessory Rooms, 85; and Equipment, 125. On the fourth page of this test a block diagram is given upon which the relative size and position of the schoolgrounds and the school buildings may be sketched. This test is published by the Public School Publishing Company, Bloomington, Illinois.

VISIT OHIO STATE UNIVERSITY

To Readers of the Bulletin:

For two years you have been reading the *Educational Research Bulletin*. Now we should like for you to become better acquainted with the University that is back of the *Bulletin*. To that end we hereby invite you to stop with us for a day on your way home from the Cincinnati meeting of the Department of Superintendence.

Friday, February 27 you will find all members of the College of Education faculty at their respective posts on the campus. Come to the new University Faculty Club and relax after the strenuous week in Cincinnati. Incidently, you will be interested to see at close range the program Ohio State University is developing.